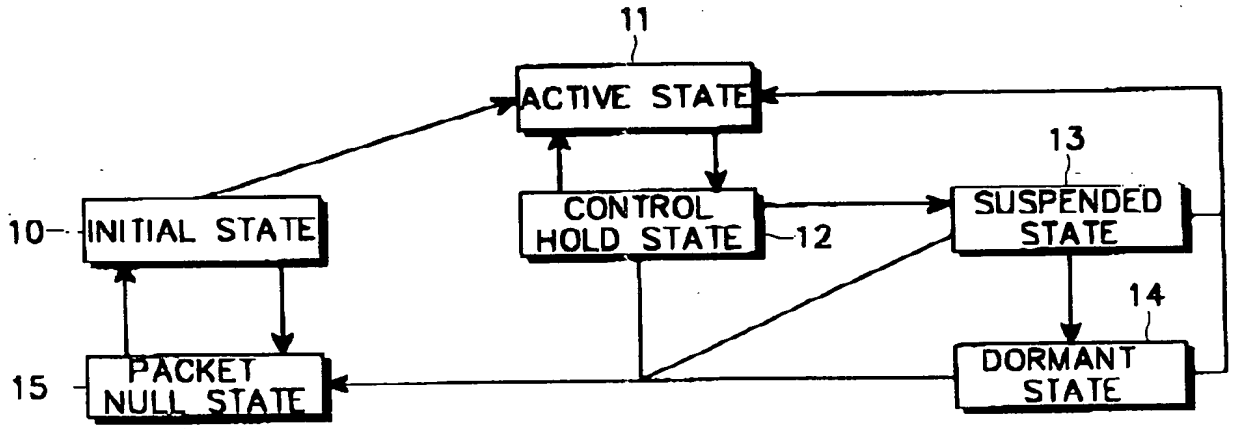
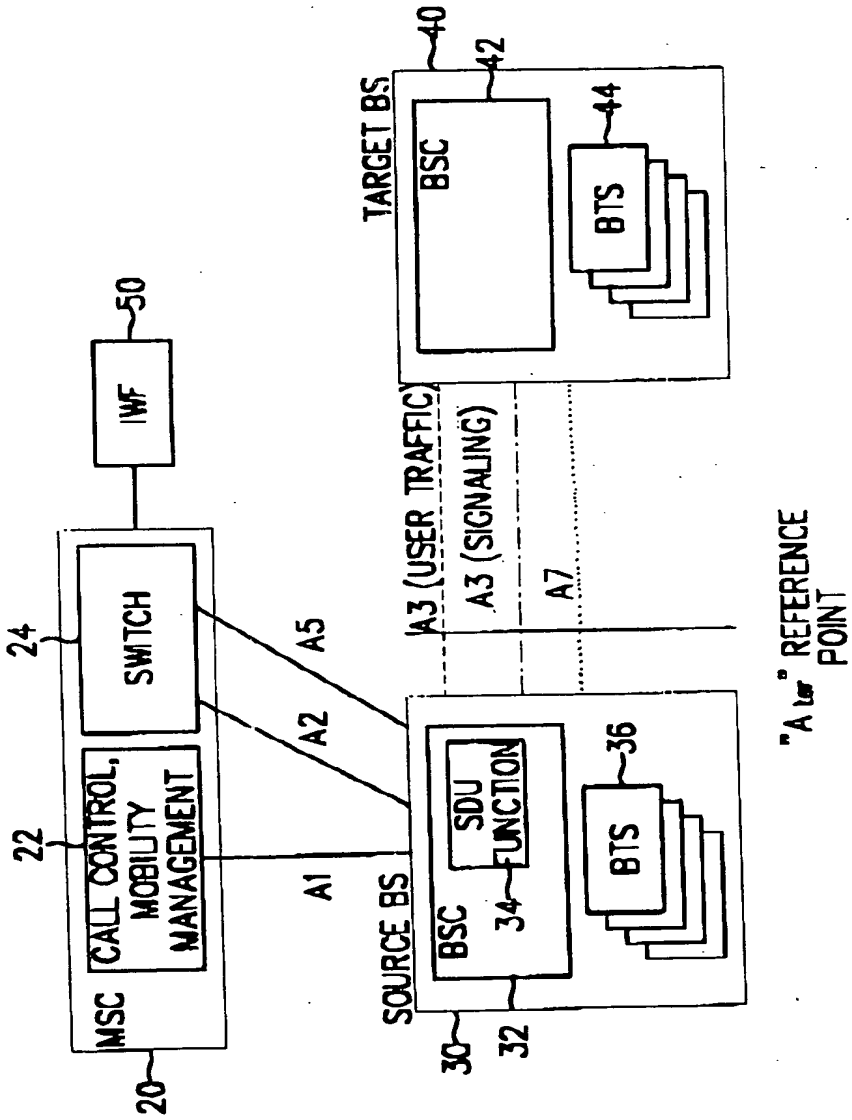

11
ACTIVE STATE
13
SUSPENDED STATE
10
INITIAL STATE
CONTROL HOLD STATE
12
14
DORMANT STATE
15
PACKET NULL STATE

FIG. 1

FIG. 2


IWF
50
TARGET BS
40
42
BSC
BTS
44
A3 (USER TRAFFIC)
A3 (SIGNALING)
A7
24
SWITCH
A5
A2
22
CALL CONTROL, MOBILITY MANAGEMENT
A1
MSC
20
SOURCE BS
30
32
BSC
SDU FUNCTION
34
BTS
36
"A ter" REFERENCE POINT

INFORMATION ELEMENT	ELEMENT DIRECTION	TYPE
MESSAGE TYPE	SDU > BTS	M
FORWARD LAYER 3 DATA	SDU > BTS	M
MESSAGE CRC	SDU > BTS	M

FIG. 3

INFORMATION ELEMENT	ELEMENT DIRECTION	TYPE
MESSAGE TYPE II	BTS > SDU	M
REVERSE LAYER 3 DATA	BTS > SDU	M
MESSAGE CRC	BTS > SDU	M

FIG. 5

FIG. 4

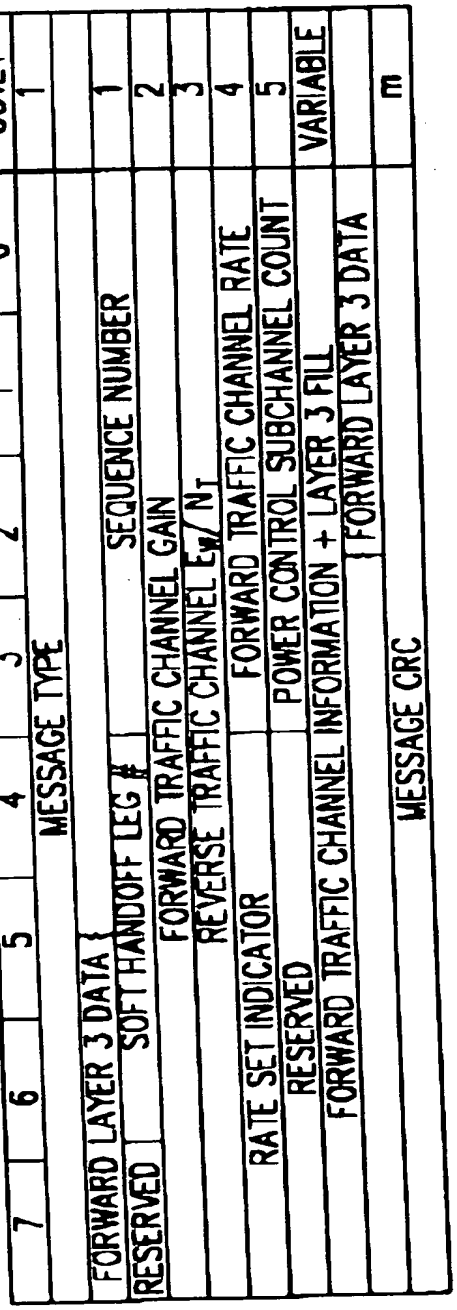
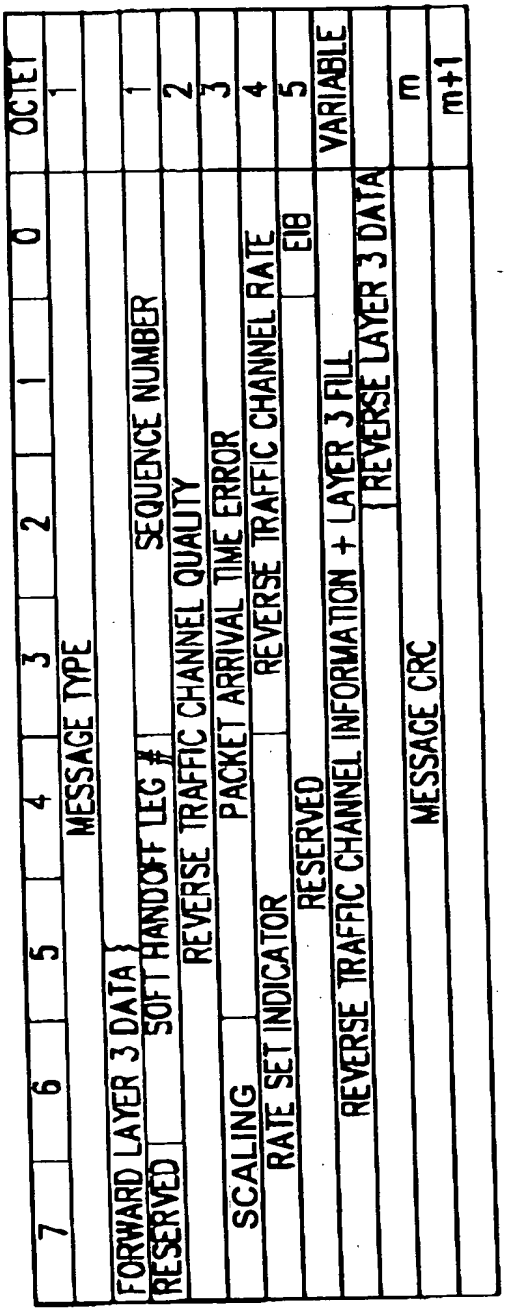

7
6
5
4
3
2
1
0
OCTET
MESSAGE TYPE
1
FORWARD LAYER 3 DATA
SOFT HANDOFF LEG #
SEQUENCE NUMBER
1
RESERVED
FORWARD TRAFFIC CHANNEL GAIN
2
REVERSE TRAFFIC CHANNEL Ew/ NT
3
RATE SET INDICATOR
FORWARD TRAFFIC CHANNEL RATE
4
RESERVED
POWER CONTROL SUBCHANNEL COUNT
5
FORWARD TRAFFIC CHANNEL INFORMATION + LAYER 3 FILL
VARIABLE
FORWARD LAYER 3 DATA
MESSAGE CRC
m

FIG. 6


7
6
5
4
3
2
1
0
OCTET
MESSAGE TYPE
1
FORWARD LAYER 3 DATA
SOFT HANDOFF
LEG #
SEQUENCE NUMBER
RESERVED
1
2
REVERSE TRAFFIC CHANNEL QUALITY
3
SCALING
PACKET ARRIVAL TIME ERROR
4
RATE SET INDICATOR
REVERSE TRAFFIC CHANNEL RATE
5
RESERVED
EIB
VARIABLE
REVERSE TRAFFIC CHANNEL INFORMATION + LAYER 3 FILL
REVERSE LAYER 3 DATA
m
MESSAGE CRC
m+1

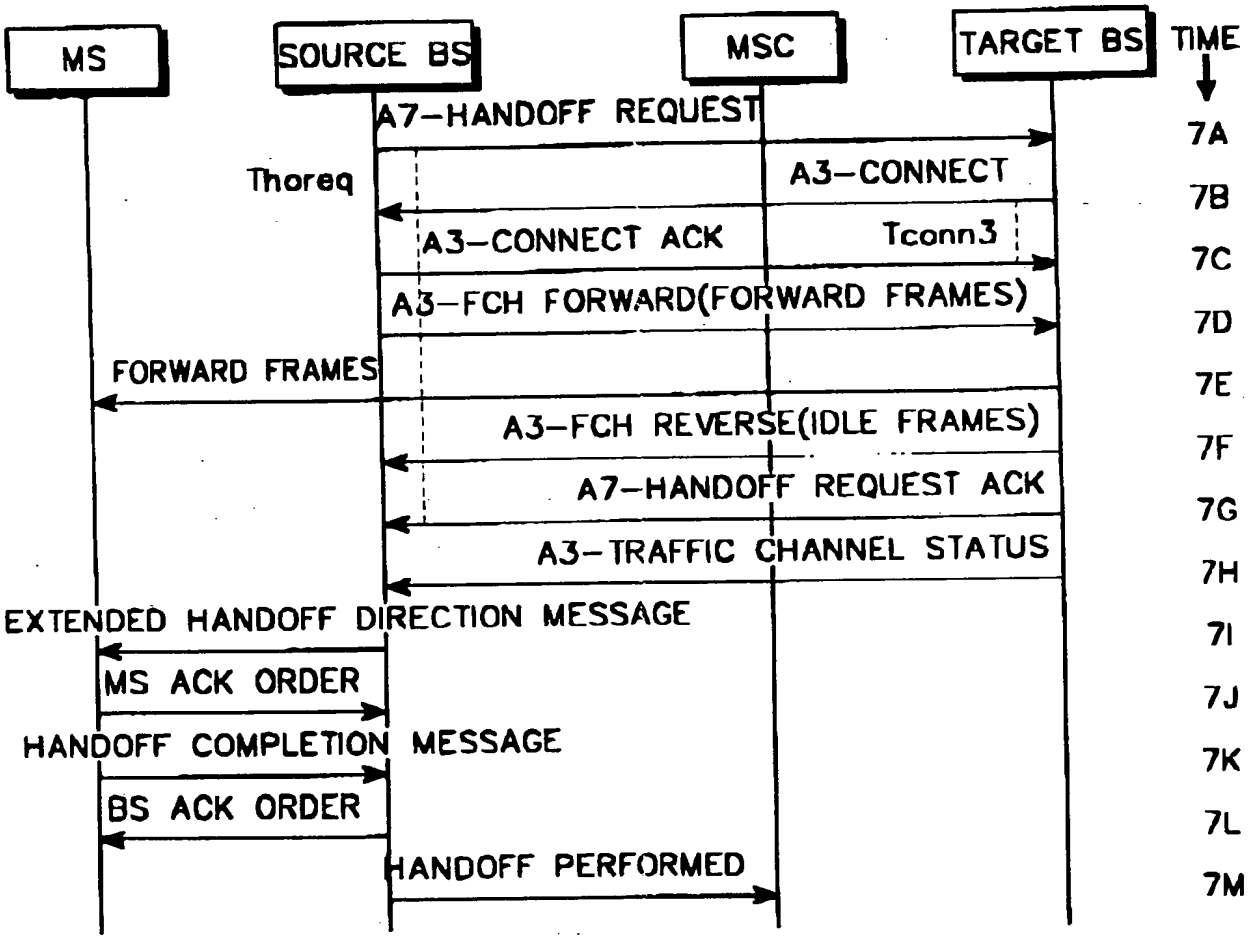

MS
SOURCE BS
MSC
TARGET BS
TIME
A7-HANDOFF REQUEST
7A
Thoreq
A3-CONNECT
7B
A3-CONNECT ACK
Tconn3
7C
A3-FCH FORWARD(FORWARD FRAMES)
7D
FORWARD FRAMES
7E
A3-FCH REVERSE(IDLE FRAMES)
7F
A7-HANDOFF REQUEST ACK
7G
A3-TRAFFIC CHANNEL STATUS
7H
EXTENDED HANDOFF DIRECTION MESSAGE
7I
MS ACK ORDER
7J
HANDOFF COMPLETION MESSAGE
7K
BS ACK ORDER
7L
HANDOFF PERFORMED
7M

FIG. 7

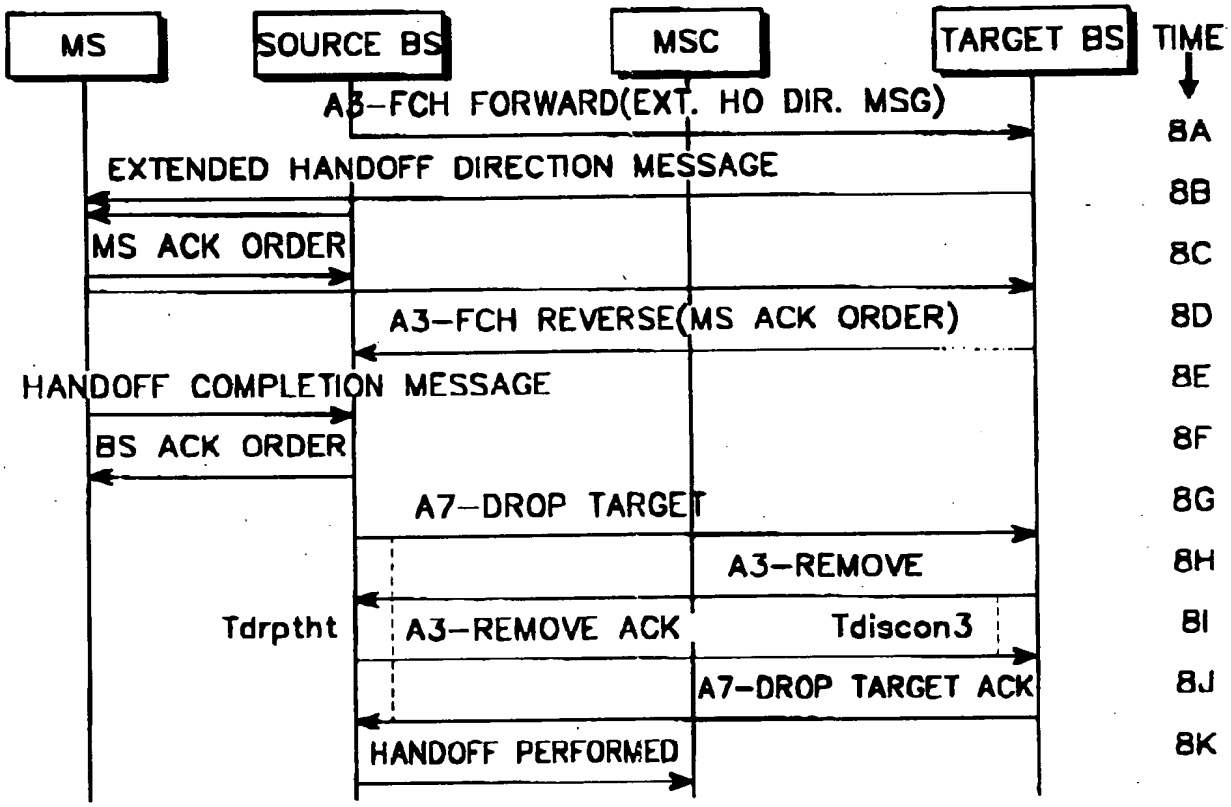

MS
SOURCE BS
MSC
TARGET BS
TIME
A3-FCH FORWARD(EXT. HO DIR. MSG)
8A
EXTENDED HANDOFF DIRECTION MESSAGE
8B
MS ACK ORDER
8C
A3-FCH REVERSE(MS ACK ORDER)
8D
HANDOFF COMPLETION MESSAGE
8E
BS ACK ORDER
8F
A7-DROP TARGET
8G
A3-REMOVE
8H
Tdrptht
A3-REMOVE ACK
Tdiscon3
8I
A7-DROP TARGET ACK
8J
HANDOFF PERFORMED
8K

FIG. 8

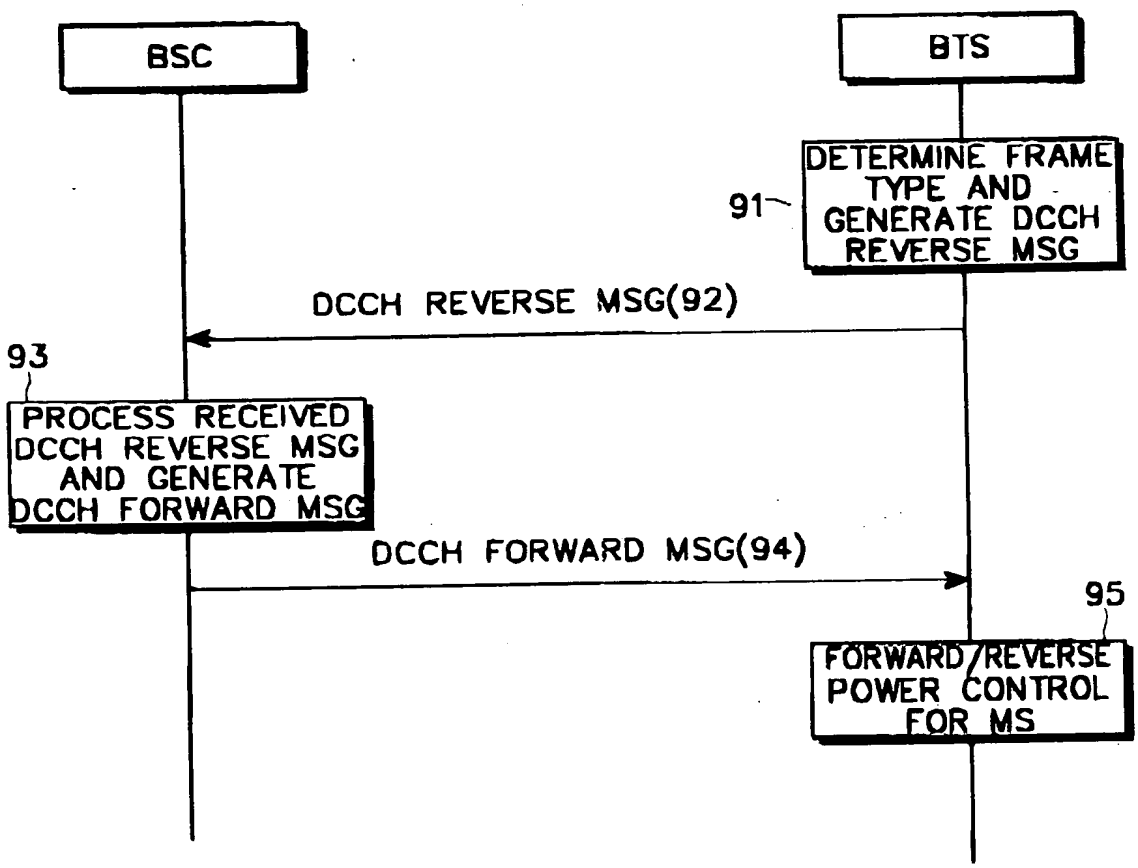

BSC
BTS
DETERMINE FRAME TYPE AND GENERATE DCCH REVERSE MSG
91
DCCH REVERSE MSG(92)
93
PROCESS RECEIVED DCCH REVERSE MSG AND GENERATE DCCH FORWARD MSG
DCCH FORWARD MSG(94)
95
FORWARD/REVERSE POWER CONTROL FOR MS

FIG. 9

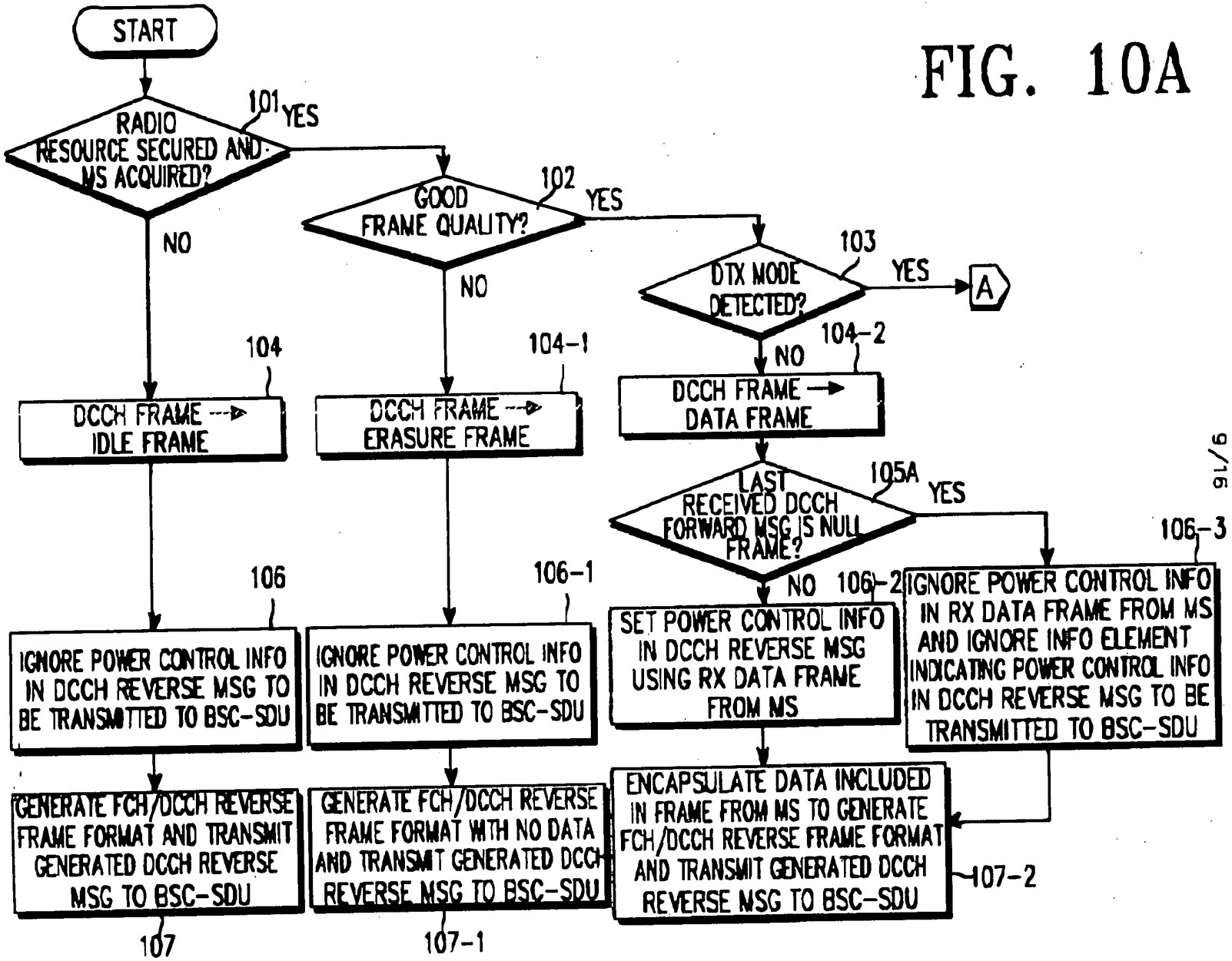
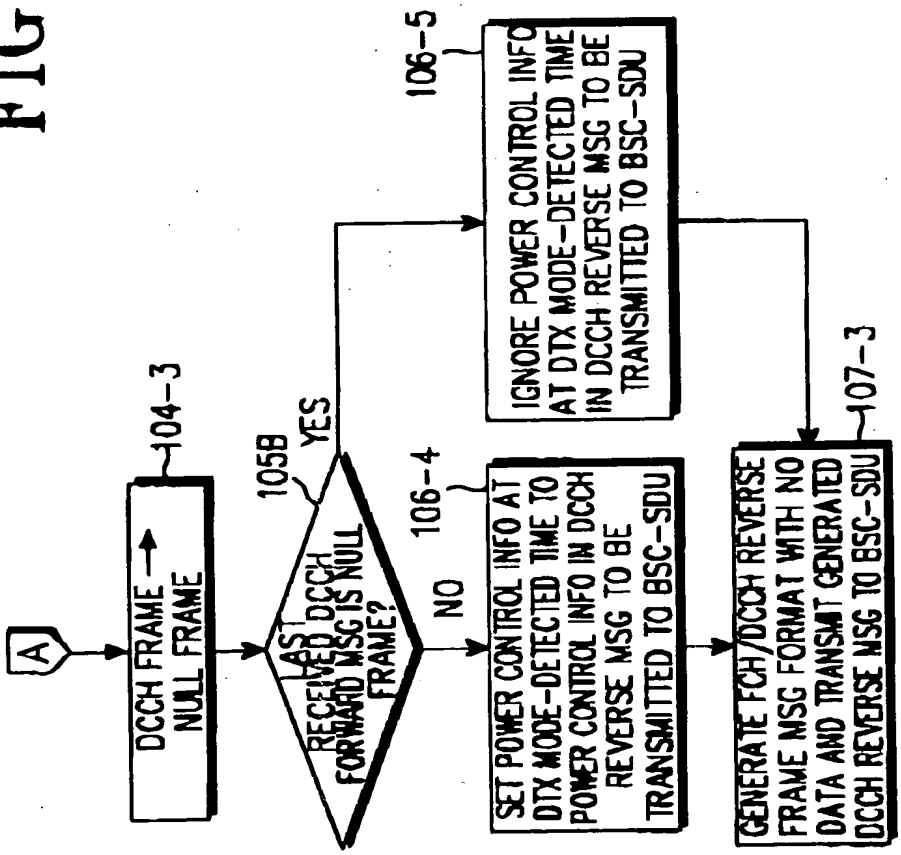

START
RADIO RESOURCE SECURED AND MS ACQUIRED?
101
YES
NO
GOOD FRAME QUALITY?
102
YES
NO
DTX MODE DETECTED?
103
YES
A
NO
104
DCCH FRAME → IDLE FRAME
104-1
DCCH FRAME → ERASURE FRAME
104-2
DCCH FRAME → DATA FRAME
LAST RECEIVED DCCH FORWARD MSG IS NULL FRAME?
105A
YES
NO
106
IGNORE POWER CONTROL INFO IN DCCH REVERSE MSG TO BE TRANSMITTED TO BSC-SDU
106-1
IGNORE POWER CONTROL INFO IN DCCH REVERSE MSG TO BE TRANSMITTED TO BSC-SDU
106-2
SET POWER CONTROL INFO IN DCCH REVERSE MSG USING RX DATA FRAME FROM MS
106-3
IGNORE POWER CONTROL INFO IN RX DATA FRAME FROM MS AND IGNORE INFO ELEMENT INDICATING POWER CONTROL INFO IN DCCH REVERSE MSG TO BE TRANSMITTED TO BSC-SDU
GENERATE FCH/DCCH REVERSE FRAME FORMAT AND TRANSMIT GENERATED DCCH REVERSE MSG TO BSC-SDU
107
GENERATE FCH/DCCH REVERSE FRAME FORMAT WITH NO DATA AND TRANSMIT GENERATED DCCH REVERSE MSG TO BSC-SDU
107-1
ENCAPSULATE DATA INCLUDED IN FRAME FROM MS TO GENERATE FCH/DCCH REVERSE FRAME FORMAT AND TRANSMIT GENERATED DCCH REVERSE MSG TO BSC-SDU
107-2

FIG. 10A

FIG. 10B


A
DCCH FRAME → NULL FRAME
104-3
105B
LAST RECEIVED DCCH FORWARD MSG IS NULL FRAME?
YES
NO
106-4
SET POWER CONTROL INFO AT DTX MODE-DETECTED TIME TO POWER CONTROL INFO IN DCCH REVERSE MSG TO BE TRANSMITTED TO BSC-SDU
106-5
IGNORE POWER CONTROL INFO AT DTX MODE-DETECTED TIME IN DCCH REVERSE MSG TO BE TRANSMITTED TO BSC-SDU
GENERATE FCH/DCCH REVERSE FRAME MSG FORMAT WITH NO DATA AND TRANSMIT GENERATED DCCH REVERSE MSG TO BSC-SDU
107-3

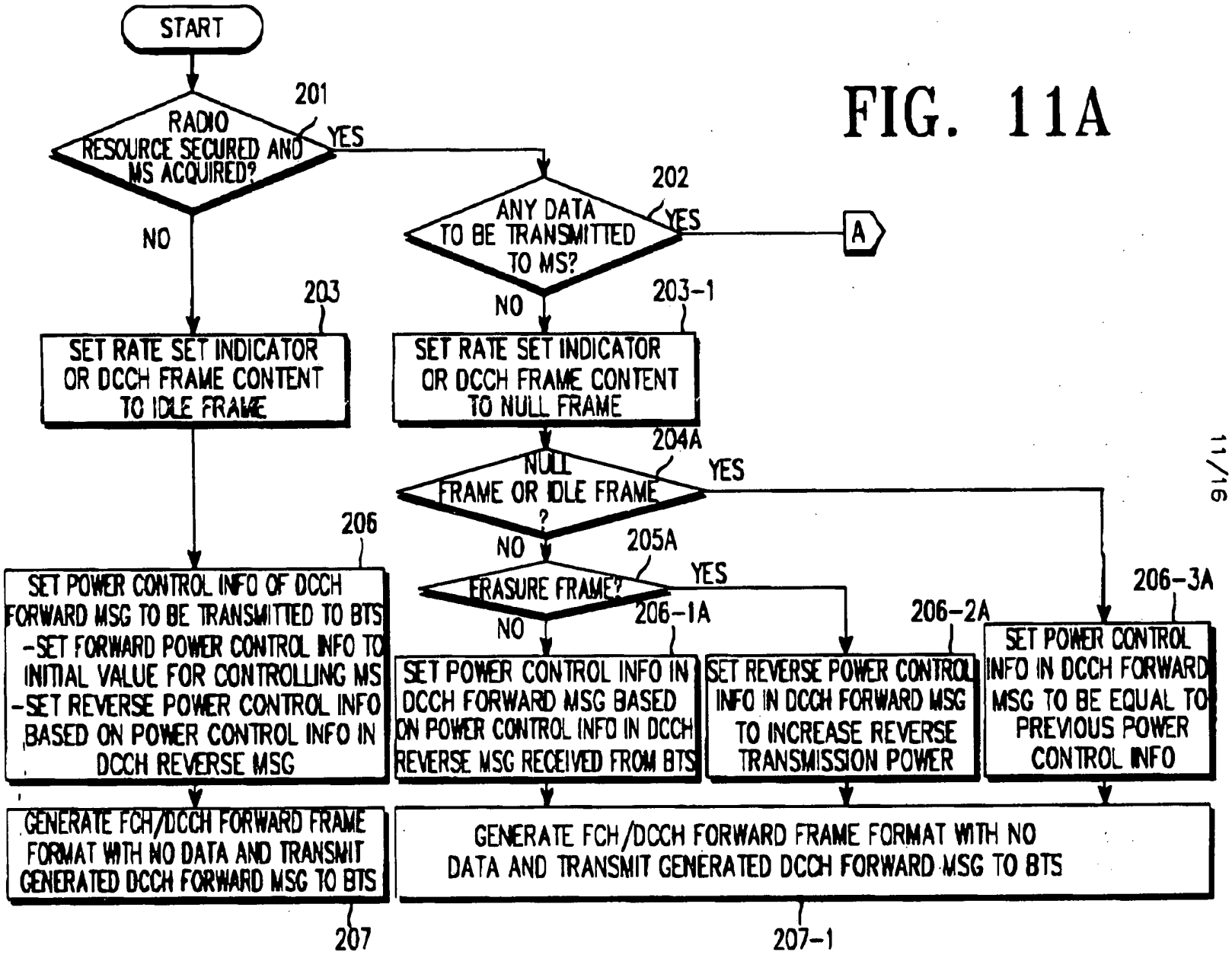

START
201
RADIO RESOURCE SECURED AND MS ACQUIRED?
YES
NO
202
ANY DATA TO BE TRANSMITTED TO MS?
YES
A
NO
203
SET RATE SET INDICATOR OR DCCH FRAME CONTENT TO IDLE FRAME
203-1
SET RATE SET INDICATOR OR DCCH FRAME CONTENT TO NULL FRAME
204A
NULL FRAME OR IDLE FRAME ?
YES
NO
205A
ERASURE FRAME?
YES
NO
206
SET POWER CONTROL INFO OF DCCH FORWARD MSG TO BE TRANSMITTED TO BTS
-SET FORWARD POWER CONTROL INFO TO INITIAL VALUE FOR CONTROLLING MS
-SET REVERSE POWER CONTROL INFO BASED ON POWER CONTROL INFO IN DCCH REVERSE MSG
206-1A
SET POWER CONTROL INFO IN DCCH FORWARD MSG BASED ON POWER CONTROL INFO IN DCCH REVERSE MSG RECEIVED FROM BTS
206-2A
SET REVERSE POWER CONTROL INFO IN DCCH FORWARD MSG TO INCREASE REVERSE TRANSMISSION POWER
206-3A
SET POWER CONTROL INFO IN DCCH FORWARD MSG TO BE EQUAL TO PREVIOUS POWER CONTROL INFO
GENERATE FCH/DCCH FORWARD FRAME FORMAT WITH NO DATA AND TRANSMIT GENERATED DCCH FORWARD MSG TO BTS
207
GENERATE FCH/DCCH FORWARD FRAME FORMAT WITH NO DATA AND TRANSMIT GENERATED DCCH FORWARD MSG TO BTS
207-1

FIG. 11A

FIG. 11B

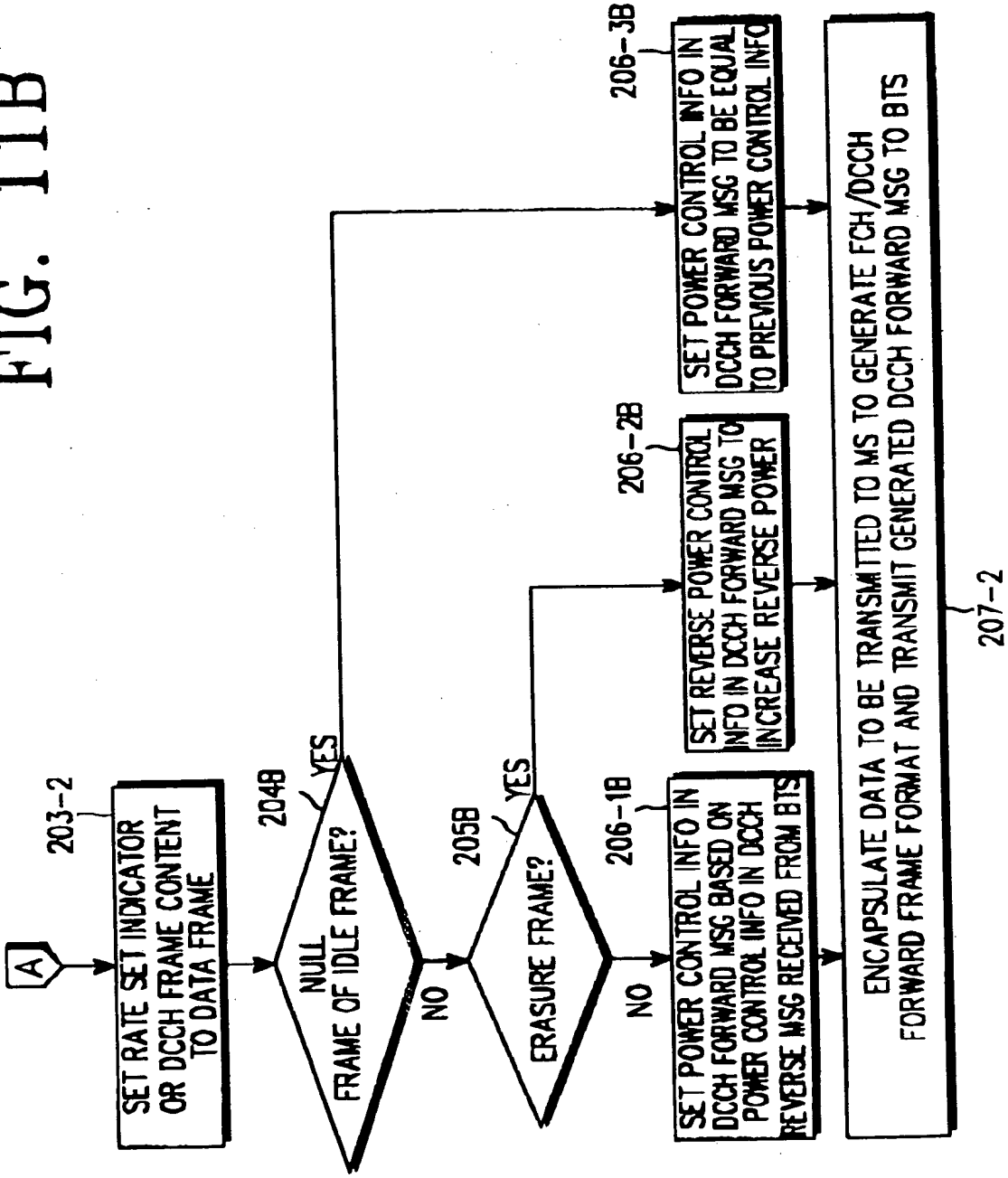

A
203-2
SET RATE SET INDICATOR OR DCCH FRAME CONTENT TO DATA FRAME
204B
NULL FRAME OF IDLE FRAME?
YES
NO
205B
ERASURE FRAME?
YES
NO
206-1B
SET POWER CONTROL INFO IN DCCH FORWARD MSG BASED ON POWER CONTROL INFO IN DCCH REVERSE MSG RECEIVED FROM BTS
206-2B
SET REVERSE POWER CONTROL INFO IN DCCH FORWARD MSG TO INCREASE REVERSE POWER
206-3B
SET POWER CONTROL INFO IN DCCH FORWARD MSG TO BE EQUAL TO PREVIOUS POWER CONTROL INFO
207-2
ENCAPSULATE DATA TO BE TRANSMITTED TO MS TO GENERATE FCH/DCCH FORWARD FRAME FORMAT AND TRANSMIT GENERATED DCCH FORWARD MSG TO BTS

FIG. 12

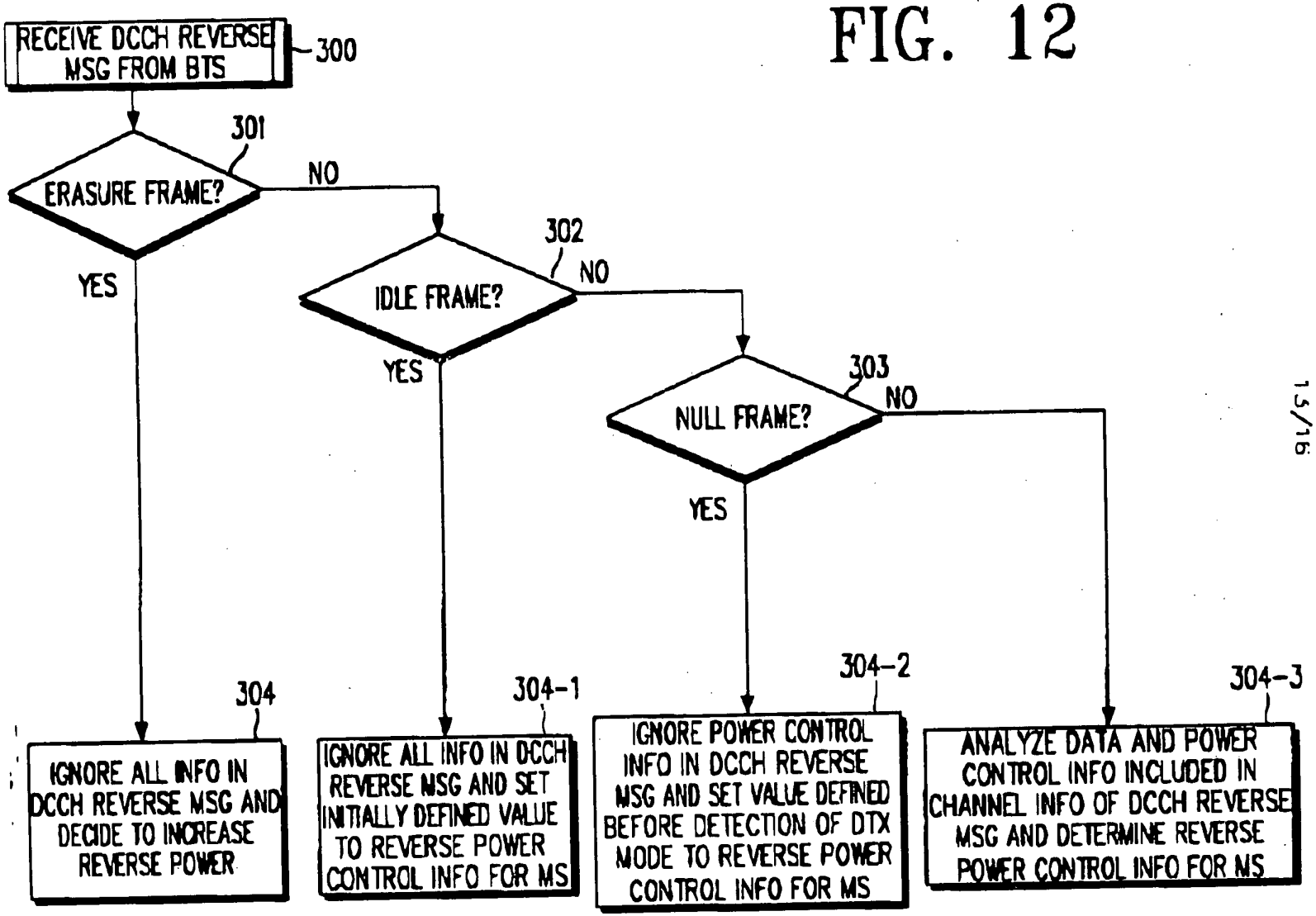
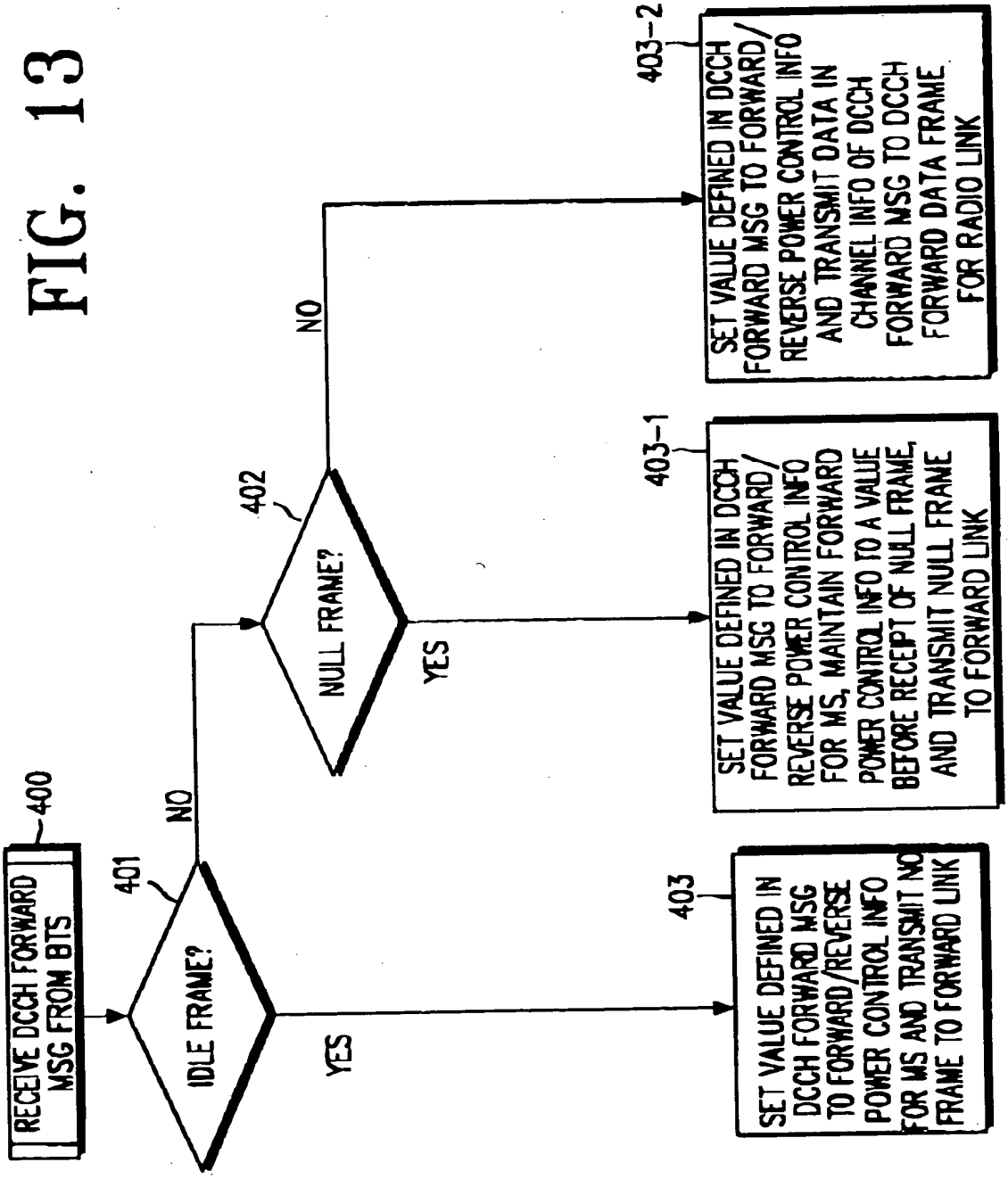

RECEIVE DCCH REVERSE MSG FROM BTS
300
301
ERASURE FRAME?
NO
YES
302
IDLE FRAME?
NO
YES
303
NULL FRAME?
NO
YES
304
IGNORE ALL INFO IN DCCH REVERSE MSG AND DECIDE TO INCREASE REVERSE POWER
304-1
IGNORE ALL INFO IN DCCH REVERSE MSG AND SET INITIALLY DEFINED VALUE TO REVERSE POWER CONTROL INFO FOR MS
304-2
IGNORE POWER CONTROL INFO IN DCCH REVERSE MSG AND SET VALUE DEFINED BEFORE DETECTION OF DTX MODE TO REVERSE POWER CONTROL INFO FOR MS
304-3
ANALYZE DATA AND POWER CONTROL INFO INCLUDED IN CHANNEL INFO OF DCCH REVERSE MSG AND DETERMINE REVERSE POWER CONTROL INFO FOR MS

FIG. 13


RECEIVE DCCH FORWARD MSG FROM BTS
400
IDLE FRAME?
401
YES
NO
NULL FRAME?
402
YES
NO
SET VALUE DEFINED IN DCCH FORWARD MSG TO FORWARD/REVERSE POWER CONTROL INFO FOR MS AND TRANSMIT NO FRAME TO FORWARD LINK
403
SET VALUE DEFINED IN DCCH FORWARD MSG TO FORWARD/REVERSE POWER CONTROL INFO FOR MS, MAINTAIN FORWARD POWER CONTROL INFO TO A VALUE BEFORE RECEPT OF NULL FRAME, AND TRANSMIT NULL FRAME TO FORWARD LINK
403-1
SET VALUE DEFINED IN DCCH FORWARD MSG TO FORWARD/REVERSE POWER CONTROL INFO AND TRANSMIT DATA IN CHANNEL INFO OF DCCH FORWARD MSG TO DCCH FORWARD DATA FRAME FOR RADIO LINK
403-2

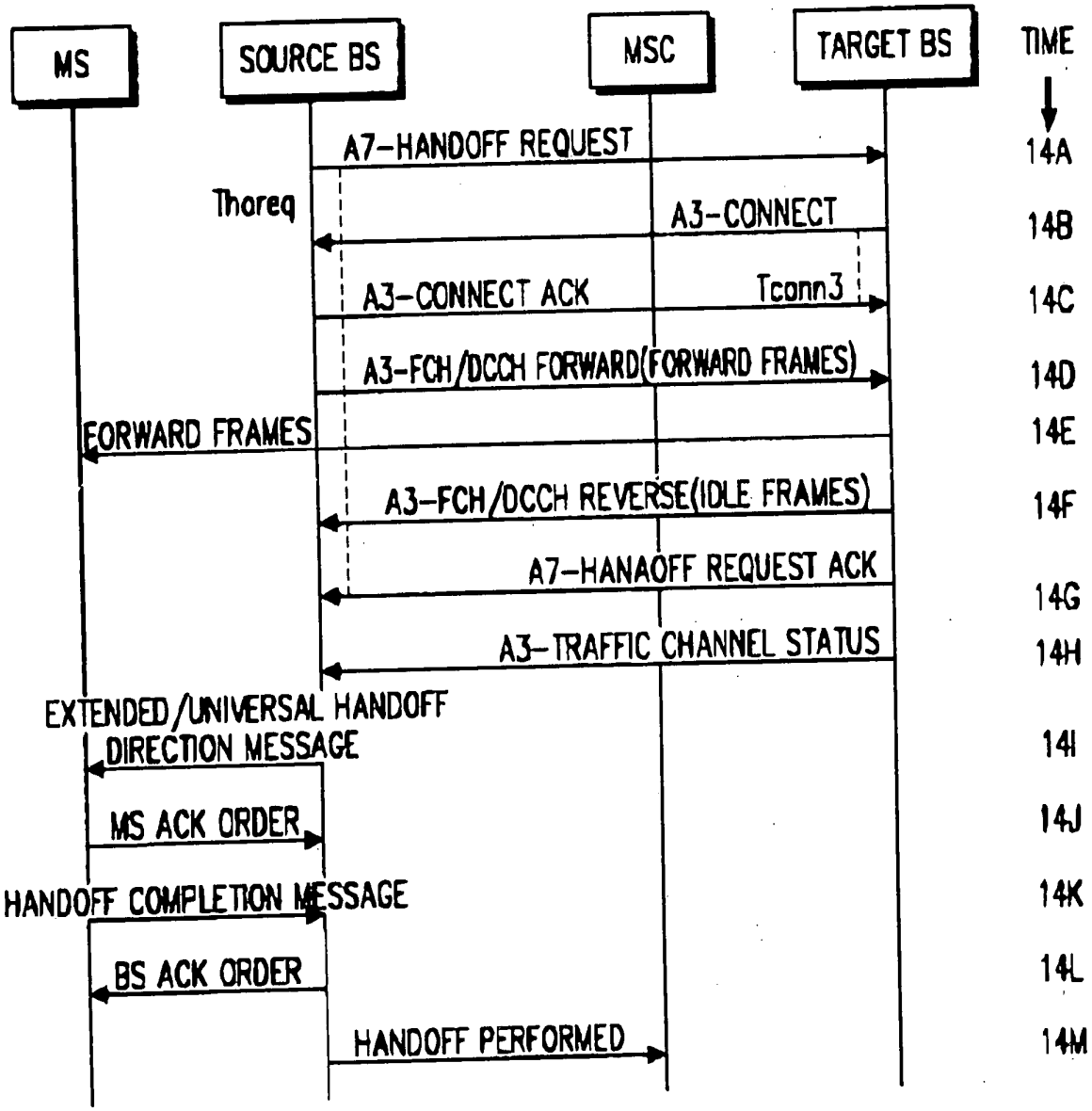
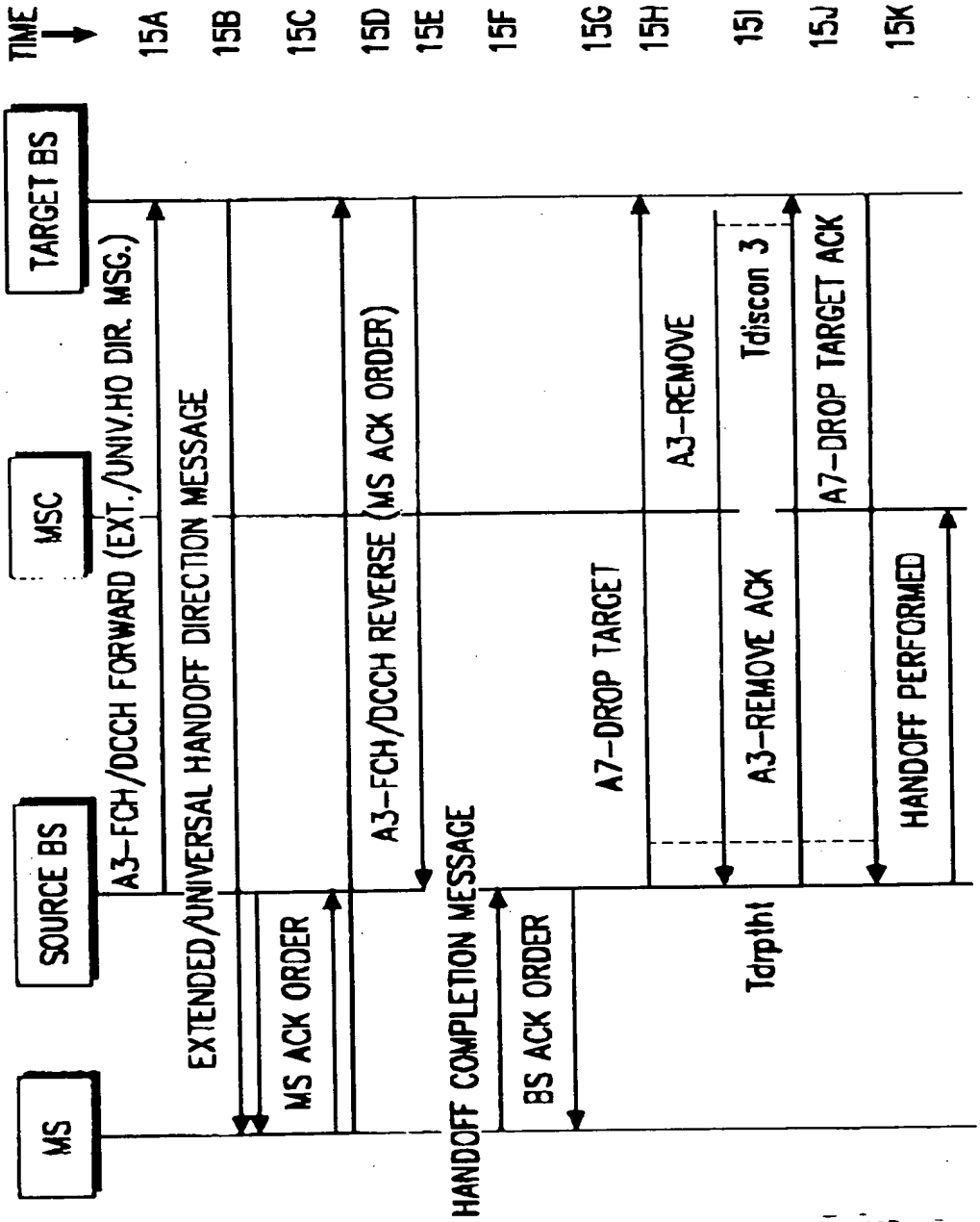

MS
SOURCE BS
MSC
TARGET BS
TIME
A7-HANDOFF REQUEST
14A
Thoreq
A3-CONNECT
14B
A3-CONNECT ACK
Tconn3
14C
A3-FCH/DCCH FORWARD(FORWARD FRAMES)
14D
FORWARD FRAMES
14E
A3-FCH/DCCH REVERSE(IDLE FRAMES)
14F
A7-HANAOFF REQUEST ACK
14G
A3-TRAFFIC CHANNEL STATUS
14H
EXTENDED/UNIVERSAL HANDOFF DIRECTION MESSAGE
14I
MS ACK ORDER
14J
HANDOFF COMPLETION MESSAGE
14K
BS ACK ORDER
14L
HANDOFF PERFORMED
14M

FIG. 14

FIG. 15


TIME
MS
SOURCE BS
MSC
TARGET BS
15A
15B
15C
15D
15E
15F
15G
15H
15I
15J
15K
A3-FCH/DCCH FORWARD (EXT./UNIV.HO DIR. MSG.)
EXTENDED/UNIVERSAL HANDOFF DIRECTION MESSAGE
MS ACK ORDER
A3-FCH/DCCH REVERSE (MS ACK ORDER)
HANDOFF COMPLETION MESSAGE
BS ACK ORDER
A7-DROP TARGET
A3-REMOVE
Tdiscon 3
Tdrpthl
A3-REMOVE ACK
A7-DROP TARGET ACK
HANDOFF PERFORMED